

**REMARKS**

Reconsideration of claims 1-19 is respectfully requested. Claims 1, 2 and 11 are amended. Applicants submit this Amendment with a Request for Continued Examination under 37 C.F.R. § 1.114.

The rejection of claims 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Fruchtnicht (U.S. 3,620,939) is respectfully traversed with respect to the amended claims. Fruchtnicht describes a process for providing a protective coating on a magnesium substrate. The process includes preparing an electroplating bath solution containing ammonium bifluoride, ammonium vanadate and an additional ingredient (the list of ingredients including permanganate). Fruchtnicht thus describes an electroplating process that requires a source of fluoride. Also, the concentration of fluoride in the electroplating solution is greater than that of vanadate or permanganate. Column 2, lines 60-67. The substrate is added to the bath solution and a potential voltage of approximately 135-175 DC volts is applied. The magnesium substrate functions as the anode in the electrochemical plating process.

Applicants' electroless passivation coating does not result from an electroplating process, as described in Fruchtnicht. Instead, applicants simply dip the magnesium substrate into the coating solution. No applied voltage (electric current) is used. On page 8, lines 1-4 of the application, applicants describe that the "conversion coating is obtained by an "electrolytic, current-free process". Claims 11 and 13 have been amended to include the terms "electroless" and "in the absence of an applied electric current" in the body of the claims to distinguish the claimed coating over the coating described by Fruchtnicht. Accordingly, applicants respectfully request that the rejection be withdrawn.

The rejection of claims 1-2, 12 and 14-16 under 35 U.S.C. §103(a) as being unpatentable over Fruchtnicht is respectfully traversed with respect to the amended claims. The Office Action rejects claims 1-2, 12 and 14-16 based on the argument that because "the process steps taught by the reference [Fruchtnicht] are the same as the process steps recited in the claims ... one of ordinary skill in the art would expect that the products resulting from the process taught by the reference would be the same as the product resulting from applicant's claimed process, including

the product's oxide content." Final Office Action, page 4, lines 4-11. Applicants respectfully disagree.

Claim 1 was amended to include the term "electroless". Claim 2 was amended to define the electroless conversion coating as a coating formed in the absence of an applied electric current. Because the claimed coated article is not prepared by an electroplating process, as described by Fruchtnicht, the claimed coating on the article will have a different coating composition. The claimed coating composition will certainly not contain significant amounts of fluoride, e.g., in the form of  $MgF_2$ , as would Fruchtnicht's electroplated coating. In fact, if applicants were to add fluoride to their electroless coating solution at the concentrations taught by Fruchtnicht, the resulting coating would be quite unstable. A  $MgF_2$  layer would form between the magnesium metal surface and the conversion coating resulting in a poorly adhered coating. The coating would have little or no commercial value. Accordingly, applicants respectfully request that the rejection be withdrawn.

The rejection of claims 1, 2 and 11-17 under 35 U.S.C. §103(a) as being unpatentable over Matsufumi (JP '073) in view of Pacz (U.S. 1,723,067) is respectfully traversed with respect to the amended claims. The Office Action asserts that "one of ordinary skill in the art would have found the [Applicants'] invention obvious because one... would have been motivated to add molybdate or tungstate to the solution of [Matsufumi]." Applicants respectfully disagree.

Matsufumi describes a process for providing a protective coating on magnesium substrates by dipping the substrate in a solution containing permanganate ion. The solution can also contain a reforming accelerator, namely a source of fluoride ion. As the Office Action recognizes, Matsufumi does not teach the "inclusion of vanadate, molybdate, or tungstate." Final Office Action, Page 6, lines 16-18.

Pacz describes a process for providing a protective coating on magnesium substrates by dipping the substrate in a solution containing molybdate and a source of fluoride ion. Pacz also describes that the coating can be applied to various metal and alloyed substrates including iron, steel, tin, aluminum and alloyed lead and magnesium.

There is no teaching in either Matsufumi or Pacz to add a source of molybdate to a permanganate solution to provide an electroless conversion coating for a magnesium substrate as proposed by the Office Action. That teaching is only provided by the applicants' disclosure.

A proper *prima facie* case of obviousness requires that there be some suggestion in the cited references with regard to the proposed combination. Matsufumi teaches permanganate and fluoride. Pacz teaches molybdate and fluoride. There is no teaching or suggestion to use permanganate with molybdate, or any teaching that the proposed combination of the two metal oxides would provide an improved coating on magnesium substrates.

As the Court has repeatedly recognized, most if not all inventions arise from a combination of old elements. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed.Cir.1998). "Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention." *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000), citing *Rouffet*, 149 F.3d 1357. In fact, "[w]here claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991), citing *In re Dow Chemical Co.*, 837 F.2d 469, 473, (Fed.Cir.1988) (emphasis added).

The improper rejection of the claims over Matsufumi in view of Pacz is not unlike the claim rejection reversed by the court in *In re Geiger*, 815 F.2d 686 (Fed. Cir. 1987). In *Geiger*, the claims at issue were directed to a method of inhibiting scale formation and corrosion of metallic parts in cooling water systems by adding to the cooling water a composition containing (A) SSMA polymer; (B) a zinc compound; and (C) and organo-phosphorous acid compound.

Three references were cited against the claims. All of the references described compositions that were to be used to inhibit scale and corrosion in cooling water systems as claimed. The first reference described the use of a composition containing (B) and (C). The second reference described the use of a composition containing (A) and another copolymer. The third reference described the use of a composition containing (A) and (C). The court reversed the rejection of the claims based on the "failure to establish a *prima facie* case of obviousness." *Id.* at 688. The court then stated that "[a]t best, in view of the disclosures, one skilled in the art

might find it obvious to try various combinations of these known scale and corrosion prevention agents. However, this is not the standard of 35 U.S.C. § 103." *Id.*

The same result and reasoning needs to be applied to this application. At best, the cited references may suggest to one of ordinary skill in the art to try the proposed combination because both solutions, that is, a permanganate solution and a molybdate solution, are each individually used to coat magnesium substrates in two separate references. However, as the court emphasized in *Geiger*, there is no motivation in either reference to combine the teachings. The references might suggest that it would be "obvious to try", but that is not the proper test for obviousness.

Furthermore, the rejection is improper because the reasonable expectation of success is not provided in the references, but rather in the applicants' disclosure. *In re Vaeck*, 947 F.2d 488. The prior art must not only provide "some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant", but must also reveal to one of ordinary skill that the combination would provide a reasonable expectation of a successful result. *In re Rouffet*, 149 F.3d 1357, citing, *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed.Cir.1998).

Applicants maintain that the teachings of Matsufumi and Pacz fail to meet both prongs of the Vaeck test. What was not known in the art, and more importantly, what is not suggested in the cited references is the overall advantage of using permanganate in combination with an oxide of vanadium, molybdenum, of tungsten to provide an *electroless* conversion coating for magnesium based substrates that perform just as well as coatings based on chromium, a very non-environmentally friendly and potentially toxic process.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted

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